

SMALL DEPRESSION DRAWDOWN MEADOW (BOGGY POOL SUBTYPE)

Concept: Small Depression Drawdown Meadows are herbaceous communities of seasonally flooded mineral soil depressions with fairly long hydroperiods. The Boggy Pool Subtype covers examples with vegetation dominated by the most acid-tolerant, boggy species, and generally having abundant *Sphagnum*. Trees and shrubs are usually absent or sparse.

Distinguishing Features: Small Depression Drawdown Meadows are distinguished from Vernal Pools by having a longer hydroperiod, with standing water or saturated soil persisting well into the growing season. They are distinguished from Small Depression Pond communities by a flora that is not tolerant of longer flooding. Dense cover of *Sphagnum* can make it difficult to distinguish surface water and presumably extends the time of soil saturation.

The Boggy Pool Subtype is distinguished from the Typic Subtype by having a low-diversity flora dominated by the most acid-tolerant species, such as *Anchistea virginica*, *Carex striata*, and *Sphagnum* spp. Other species characteristic of the Typic Subtype will be present only in small numbers and with low diversity. Most will be the more broadly tolerant species such as *Andropogon* spp., *Erianthus giganteus*, and *Hymenachne hemitomon*.

The Boggy Pool Subtype is similar floristically to the Acidic Subtype of Cypress Savanna. It is distinguished by occurrence in smaller, more steeply sloping basins, by the absence of trees, and usually by more extensive coverage of *Sphagnum*.

Synonyms: *Woodwardia virginica* / *Sphagnum cuspidatum* Herbaceous Vegetation (CEGL004475), Small Depression Pond (3rd Approximation).

Ecological Systems: Southern Atlantic Coastal Plain Depression Pondshore (CES203.262).

Sites: The Boggy Pool Subtype usually occurs in limesinks, less often in swales in dune systems, and occasionally in Carolina Bays.

Soils: All examples are small enough that they are usually treated as inclusions in surrounding soil units in soil surveys. The abundance of *Sphagnum* may contribute to accumulation of an organic layer on the soil surface, in contrast to the Typic Subtype, but this is not known.

Hydrology: Surface water is shallow to moderate, usually a few inches to a couple feet deep at the most. Water persists well into the growing season but is gone before the end of summer in ordinary years. The soil may remain saturated for much or all of the rest of the year.

Vegetation: The vegetation is dominated by a moderate to dense herbaceous layer with low species richness. *Sphagnum cuspidatum* or some other *Sphagnum* species is usually abundant, often covering the ground beneath other plants or covering the water surface. *Anchistea virginica* is highly constant and often dominates. *Carex striata* is frequent and is abundant in some examples. *Dulichium arundinaceum*, *Xyris difformis*, *Hymenachne hemitomon*, *Lachnanthes caroliniana*, *Juncus repens*, *Proserpinaca pectinate*, *Erianthus* sp., *Carex bullata*, and species of *Rhynchospora* or *Dichanthelium* may be present. Shrubs or trees may be absent, sparse, or moderately abundant. *Nyssa biflora* is the most frequent tree species but *Taxodium ascendens*

occurs occasionally. *Vaccinium formosum*, *Vaccinium fuscatum*, *Eubotrys racemosa*, *Cyrilla racemiflora*, or *Litsea aestivalisi* may be present. *Smilax rotundifolia* sometimes forms tangles.

Range and Abundance: Ranked G2. The Boggy Pool Subtype is scattered throughout the outer Coastal Plain with a few occurrences in the middle Coastal Plain. Though rarer, this subtype is more widely distributed than most Coastal Plain Depression Communities, occurring in several northern sites extending to the Virginia border. However, none are known in the Sandhills or areas with a concentration of clay-based bays. The synonymized NVC association ranges from New Jersey to Florida.

Associations and Patterns: The Boggy Pool Subtype usually occupies all of a basin or is surrounded by a Small Depression Shrub Border rim. Examples sometimes occur in limesink or dune swale clusters with other depression communities but often occur as the only depression community in a site. Most were naturally surrounded by longleaf pine communities.

Variation: No patterns of variation have been identified other than those associated with the transition to other communities.

Dynamics: The dynamics of the Boggy Pool Subtype are particularly unknown. The mossy, extremely acidic character is believed to be long-standing even as water levels change. The author has observed *Sphagnum* beds floating in some flooded depressions but submerged on other occasions. If the moss floats, its cover may remain high during wet periods. During drought, other herbaceous vegetation could produce enough cover to reduce the vigor of the moss but it can persist under heavy cover.

The water-holding capacity of *Sphagnum* and limited abundance of grass presumably makes this subtype unable to carry fire, even though it occurs in landscapes with frequent ignition.

The factors that lead to the formation of this subtype are not known. Many examples are distant from other depression communities and could lack seed sources for other species. Many are in northern or inland areas where fire may have been less frequent and where it has been absent longer. Nevertheless, a number of well-developed examples are in clusters with other depression communities and some are in landscapes where fire frequency has been greater. It is possible that some specific circumstance leads to proliferation of *Sphagnum* and that, once established, it is competitive enough to persist. Given the limited number of observations over time, it is possible that some don't persist. Current evidence suggests these communities are distinct and stable over long time periods.

Comments: A related community called Vernal Pool (*Sphagnum* Subtype) in the Fourth Approximation Guide has been dropped. That community was described as consisting almost solely of *Sphagnum cuspidatum*, with little vascular plant component. No examples have been found in North Carolina. It was interpreted at that time as representing less wet conditions than the Boggy Pool Subtype. This no longer seems likely. If a depression with dense *Sphagnum cuspidatum* were found in North Carolina, it is expected to fit within the concept of the Boggy Pool Subtype. Its NVC equivalent, *Sphagnum cuspidatum* Nonvascular Vegetation (CEGL004384), could be treated as a synonym to the Boggy Pool Subtype.

Carex striata var. *brevis* Herbaceous Vegetation (CEGL004120) is an association described for New Jersey to Virginia and attributed to North Carolina and South Carolina. It might fit within this subtype's concept or that of the Cypress Savanna (Acidic Subtype). Given the close association of *Carex striata* with *Woodwardia virginica*, it does not appear that such a distinction is warranted here. No distinct examples are known in North Carolina.

Rare species: Vascular plants: *Litsea aestivalis*.

Vertebrate Animals: The acidic conditions apparently are unfavorable for the breeding of rare amphibians associated with other depression communities.

References: